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ABSTRACT

Students' reported reasons for academic success or failure (categorized as ability, effort, task difficulty, or luck) were studied simultaneously in over 1,000 students in grades 4, 8, and 11. Differences between 16 attributional groups (4 success x 4 failure) were reported by discriminant analysis, according to grade, sex, and ethnic group--Oriental, American Indian, Black, Hispanic, Caucasian, and other. Variables traditionally associated with effort (continuing achievement motivation, family background, homework, and extra-curricular reading habits and resources) and variables associated with ability (including test comfort or low test anxiety) were intercorrelated and examined for age, sex, and ethnic differences. (CP)

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Socio-cultural Differences and Developmental Changes in Continuing Motivation, Evaluation Anxiety, and Attributions of Success and Failure

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My talk here today will focus upon the empirical demonstration of the potent inter-relationships between a student's attributions, continuing achievement motivation, and evaluation anxiety and the modifications imposed by socio-cultural and age-related influences. Let's begin with attributions.

Attributions

Weiner (1972) has shown that students attribute their success and failures to one of four ascriptions (ability, effort, task difficulty or luck). In the main, a student's attributions for success and failure have been studied exclusively and separately (Weiner 1978, 1974; Dweck and Goetz, 1978) with no one investigating the conjoint influence of success and failure attribution together. We will do so momentarily, but first it would be worthwhile to study results for success and failure attributions when considered separately as is traditionally done. Their results are given in tables 1 and 2.

TABLES 1 and 2

The results in their tables show several interesting patterns. First, it is the effort attribution which is most frequently associated with high levels of continuing achievement motivations. This holds whether effort is for failure or success attribution. Second, effort attributions appear associated whith a student's having a continual communication with parents concerning school work. Third, effort attributions are linked to strong homework and extra-curricular reading patterns and resources. Fourth, when attributing for success, ability attributions are tied to low test anxiety. Further, it is interesting to note that luck ascriptions, at least in the eighth grade, were made by the older students, possibly students who had failed and held back a year (etc.)

Having presented this data for success and failure attribution separately, the question could be asked as to what would be the influence of classifying a student as to his/her success and failure attribution simultaneously. This approach would allow for the formation of 16 different attributional groups (4 success X 4 failure). Figure 1 presents these 16 attributional groups of students.

FIGURE 1

The N's inside each cell of Figure 1 indicate the number of students so attributing at 4th (top N), 8th (middle N) and 11th (bottom N) grades. These N's are themselves instructive as they indicate which success attribution and failure attributions are normatively linked together in the population of students. Perhaps, also this information points to which success and failure attributions are seen as incongruous from the perspective of a student.

Even more important is how these N's change as one moves from 4th, to 8th to 11th grade results. In particular, note that the number of students attributing success to external factors (task difficulty and luck), except for those attributing failure to effort, decreases greatly from 4th to 11th grades.

The discriminant differences between these 16 attributional groups is given by the discriminant analysis results shown in Table 3.

TABLE 3

In line with the hypotheses of Nicholls (1978, 1977), it is interesting to note that attributing success to ability is an extremely strong prodictor of performance in all levels tested (group 15 in 4th grade; groups 13 and 14 in 11th grades; and group 16 in 8th grade). Furthermore, the highest level of continuing motivation is linked to these success attributions to ability (Group 13, 15, and 16). Moreover, attributing failure to lack of ability does not seem as debilatetive as one would pre-suppose (Dweck, 1978, 1974). All of this information is of great importance in light of the increasing salience of ability assriptions over age (Nicholls, 1977; Fyans; 1975).

Other analyses revealed that, at least in terms of the preceding 16 attributional groups, there was no clear cut sex X attribution interaction effect. However, it is interesting to briefly note the ethnic composition of several of these attributional groups. Focusing for now upon the 11th grade data, the ethnic minorities appeared associated with attributions which are linked to low acadamic achievement. For example, attributional group 7 (see figure 1) had high concentrations of hispanic and black students. Attributional group 3 was composed of many American Indians and low performing Oriental students. Other ethnic miniorities (East Indians) were concentrated in group 4. White students were mainly cnetered in groups 11, 10 and 15. Further research must be done at all levels to determine the direction of the causal chain between ethnicity, attribution, and achievement. The use of a LISREL IV (Joreskog, 1978) program might be helpful here. However, before testing this path model; lets examine two other possible causes or facilitative agents; namely evaluation anxiety and continuing achievement motivation and socio-cultural and developmental influences upon them.

EVALUATION ANXIETY

The format for discussing thse results will strictly be correlational. (Other analyses have been promulgated such as multiple regressions, anova, etc. but there are too time consuming to present). Lets consider the care where we have broken our data into 12 parcels using sex (male, female) and ethnicity (Oriental, American Indian, Black, Hispanic, White, other) as the two joint classification varibles. We have run separate within group correlational matrices for each of those 12 sex X ethnic groups at each of fourth, eighth, and eleventh grades.

In term of correlation with actual academic performance, test comfort correlations with mathematics performance peak in the 11th grade female oriental group with an rxy = .56, followed by 11th grade female hispanics with rxy = .44. The correlation with male mathematics achievement range rxy = .33 for male whites in 8th grade to rxy = .32 for male hispanics in 11th grade. It is indeed interesting to note that the American Indian Males have negative correlations in eighth (rxy= -.41) and fourth (rxy = -.41) and fourth (rxy = -.21) grades between

mathematics and test comfort scores. The American Indian female follow this pattern also in fourth grade (rxy = -.21). This same result for American Indian students is found in the same grades for correlations with reading achievements. Here the correlation of reading with test comfort for American Indian females is rxy = -.43 (fourth grade) and for American Indian males is rxy = -.21 (fourth grade) and rxy = -.20 (eight grade). This effect washes out by the eleventh grade year. To a small degree female hispanics at fourth grade mirrors this pattern with and rxy = -.13. Perhaps in the early grades test anxiety is a "collaterel yet non-debilitating effect" of education for American Indians in early grades similar to the case of "fear of success" and achieving women as found by Farmer and Fyans (1973).

The correlations of reading and test comfort in other ethnic groups demonstrate a reverse of the patters found for the American Indians. In particular, for fourth grade female orientals rxy = .46 between reading and test comfort. By 11th grade female hispanics have changes the direction of the sign to an rxy = .13 between reading scores and test comfort. For male hispanics in 11th grade this correlation is rxy = .28. Male whites have a reading, test comfort correlation that varies from rxy = .24 in 4th grade to .34 in 11th grade.

Perhaps, even more important are the correlations between familial/ background varibles and test comfort amongst these sex X ethnic groups at different grade levels. Four our purposes today, let's focus upon 3 such variables:

1. How often the child talks to parents about school work.
2. The regularity that the family has newspapers and magazines.
3. Parental education level.

The correlations between communication with parents and test comfort were primarily positive for male students at all grade levels. At 4th grade the larger correlations were rxy = .37 for male American Indian to rxy = .30 for male hispanics to rxy = .28 for male blacks. However, in 8th there correlation became much larger to rxy = .69 for 8th American Indians and rxy = .48 for hispanics. At 11th grade this communication with parents, test comfort correlation was rxy = .41 for male orientals whereas it had been only rxy = .17 in 4th grade. However, interestingly, at 11th grade the direction reverses for male hispanics to rxy = -.69. These results point to a strong linkage between parental involvement and student's comfort during educational evaluations that a priori may not have been assumed as educational folklore holds that the relevance of parental importance varies with ethnicity and that school work is not preceived as a sex role appropriate task for males by themselves or their parents. Note only that at each grade level, these correlation were positive for the American Indian males, whose correlation of test comfort with mathematics performance was negative (see above).

In contrast to the males, for female students, the correlations be[illegible] communication with parents and test comfort are primarily negativ[illegible] 4th grade (rxy = -.20 female hispanics; rxy = -.20 blacks, rxy = -.46 female others) except for female orientals with rxy = .40. However,

this pattern completely reverses in the 8th and 11th grade data. In 8th grade the correlation are rxy .44 female hispances. and rxy = .53 for female Indian, and rxy = .14 for female blacks at 11th grade. Female orientals have a negative correlation of rxy = -.51 in 8th grade between communication with parents and test comfort but reverses itself to rxy = .37 in 11th grade.

In terms of familicl resources of newspapers and magazines, positive relationships are found at 4th, 8th, and 11th grades for male and female black, white, and Others, female Indians, female hispanics and male orientals between presence of newspapers to the home and test comfort. However, for 11th grade male hispanics this correlation is rxy = -.37. Likewise, for 4th grade male Indians, rxy = -.21. (For the male Indians, this pattern reverses in 8th and 11th grades). Further, female orientals have negative relationsips in 8th and 4th grades, but at 11th grade have rxy = .22 between familicl magazine resources and test comfort.

For parental education level, it must first be noted that we distinguish between 9 levels of schooling ("did not complete 8th grade" to "doctoral degree") for each parent in our assessment in grades 8 and 11th. A couple of noteworthy findings are that, first, for female students, it was the education of the mother (in general) which had a relationship to their test comfort. For male students, it was the father's education that related to the students test comfort. Thus, there was no "cross-sex" influence found between parental education and student's evaluation anxity. Second, these relationsips between parental education and test comfort were primarily positive at all grade levels and in all ethnic groups. However, third, there was a negative relationship of rxy = -.47 for 11th grade male orientals, between father's education and student's test comfort. Perhaps as the oriental father becomes more educated (to masters or doctoral level) more and more demands are pressed upon the son. This finding must await further research.

Likewise, for 11th grade female blacks there was a negative correlation (rxy = -.15) between mother's education and daughter's evaluation anxiety. Perhaps a similar pattern as with 11th grade male orientals is operating here.

Continuing Achievement Motivation on "Thirst for Knowledge"

Several different indicators of continuing achievement motivation (of Fyans, Kremer, Salili, and Maehr, 1979; Salili, Maehr, Sorenson and Fyans, 1976) were available in this data. However, two of them one behaviorial, another item indicator responses will be discussed here. The item which could be defined as tapping continuing motivation was phrased, "In addition to books you use for school work, how often do you read books?" The students could respond in four ways from "never" to "just about everday". The responses to this item correlated positively with 4th, 8th, and 11th grade males internal attributions (ability, effort) for success. For males hispanics students this rxy = .13 in 4th grade and rxy = .51 at 8th and 11th grades. 11th grade male Indians had rxy = .42 between high levels of continuing motivation as expressed on this item and internal attributions.

For female students, responses to this item showing high levels of continuing motivation also correlated positively with internal attributions, reaching rxy = .64 for female hispanics in 11th grade and rxy = .45 for 4th grade female orientals which also had rxy = .29 in 11th grade.

The correlations of the responses to this item and a students "evaluation comfort" are also of interest. For males, the largest correlation with test comfort is with 8th grade American Indian with rxy = .74. However, in the main, the correlations are much lower than that, ranging around rxy = .29 (11th grade male Blacks) to rxy = .34 (8th grade male hispanics to rxy = .19 (4th grade male Indians).

Similar results are found for female students, with correlations between evaluation comfort and this item level continuing motivation ranging from rxy = .46 (4th grade female orientals) to rxy = .37 (8th grade American Indians) to rxy = .18 (8th grade female blacks) to rxy = .17 for 4th grade female hispanics

The behaviorial measure of continuing achievement motivation was based upon how the child spent a 3 minute rest period between the math and reading and citizenship subtests. The child could simply rest or work on a set of similar items to those the student just completed. The latter items were cued with non-evaluative information ("these items will not count in your test score", etc.) The dependent variable becomes simply the number of extra items completed. For now we will focus on the mathematics continuing motivation subset or continuing motivation for mathematics.

For most ethnic groups of males this behaviorial measure of continuing motivation correlated positively with their mathematics achievement. At the 11th grade level the correlation were particularly strong for hispanics (rxy = .51), blacks (rxy = .41), and orientals (rxy = .33). Even at the 4th grade the correlations were rxy = .33 (blacks), rxy = .29 (orientals), and rxy = .25 (white and Indian).

For males, however, the correlations between this behaviorial measure of continuing motivation and evaluation comfort are quite low. The only large positive ones are rxy = .45 (8th grade America Indian) rxy = .30 (4th grade Orientals) rxy = .56 (11th grade "others") and rxy = .19 (11th grade blacks). The other correlations are very low, except for a negative correlation of rxy = -.47 for 4th grade American Indians.

For female students, the correlations between continuing motivation and mathematics performance are all positive in 4th grade (rxy = .55 Orientals, rxy = .52 "others", rxy = .33 Indians, rxy = .28 whites, rxy = .26 blacks, rxy = .20 hispanics) but dwindle and become negative in 8th and 11th grades. The only ethnic group which bucks that pattern are the female American Indians who maintain an rxy = .26 in 8th grade and rxy = .50 in 11th grade between countinuing motivation and mathematics achievements. Perhaps this data reflects the evaluation free " on your own" essence of the continuing motivation task, since other students show longitudinal poor performance fo females in mathematics.

However, this perspective is not borne out by the correlations of continuing motivation and test comfort for females which is quite low and sometimes negative across the ethnic groups and over the grade levels.

Sense of Competence and Achievement

I would like to close on a topic that Maehr (1979) has discussed and one in which both Maehr and I have been concerned (Maehr, 1979): the student's sense of competence. Essentially, this should be the end product of all of these achievement related motives: attribution, evaluation, anxiety, continuing motivation. Theoretically, it may well be that this "sense of competency" has a multiplicative relationship with a student's achievement (i.e. a student's sense of competency when multiplied by the students attainment value for achievement produces the students achievement in an area).

Unfortunately, we have not direct data as yet to link these other variables into a "sense a competence" variables or network. However, we do have one item on which the students are asked to rate, how well they think they read. They can respond, "worse", "as well as", or "better" than "most students my age that I know". While this item is an unrefined attempt at measuring "sense of competence" the correlations in the data are all positive with both evaluation comfort, and internal attributions for almost all sex X ethnic groups at all grades level served (4th, 8th, and 11th). Confirmation of this network will require optimal operationalizations of sense of competence and path analyses (LISREL IV, Joreskog, 1978). But perhaps, this is the direction in which we should head, first, to map out all of the factors and inter-relationships leading to a student's sense of competence and subsequent thirst for knowledge and then, second, design measurement methodology to conduct educational evaluations and testings of students which do not debilitate but facilitate the veridical expressions of their educational achievements. This would permit the "problems" in assessment to turn into "opportunities" for achievement for students from all ethnic, sex and developmental levels.

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Table 1
Discriminant Analysis on Success Attributions

	Definition of Function
Fourth Grade	
Function I: Discriminated Ability and Effort Groups from Luck and Task Difficulty Groups	1. Higher total reading scores 2. Higher total math scores 3. Low Test Anxiety 4. Felt they were more competent than most students 5. Felt sure they will get it right.
Function II: Discriminated Efforts Group from All Others	1. Talked everyday with parents about school work 2. Had high continuing motivation
Eight Grade	
Function I: Discriminated Ability Group From All Others	1. Hi Total Math 2. Felt they read better than other students 3. Low anxiety 4. Primarly males
Function II: Discriminated Effort Group From All Others	1. Talked to parents about school work everyday 2. Primarily females
Eleventh Grade	
Function I: Discriminated Effort From All Other Groups	1. Talked to Parents about Group school work everyday 2. Read Bookds About Everyday 3. Family Gets Magazines Resoures 4. Feel they will do good work on homework 5. Had high continuing motivation
Function II: Discriminated Luck Group from All Other Groups	1. Had low total math socres 2. Were highly anxious 3. felt they read worse then most students.

Table 2
Discriminant Analysis For Failure Attributions

	Definition of Function
Fourth Grade	
Function I: Discriminated Effort Group From All Others	1. High math scores 2. High Read scores 3. Felt they knew the answers to the math tests of teacher 4. Talked to parents everyday about school work
Eighth Grade	
Function I: Discriminated Effort Group From All Others	1. High reading scores 2. Low Test anxiety 3. High Continuing motivation 4. Read a Book Everyday
Function II: Discriminated Luck Group from All Others	1. Were older students 2. Low continuing motivation
Eleventh Grade	
Function I: Discriminated out Ability Group from All Others	1. very low reading scores 2. high test anxiety 3. never talks to parents about school work 4. never read magazines

Figure 1
ATTRIBUTION FOR SUCCESS

ATTRIBUTION FOR FAILURE	ABILITY	EFFORT	TASK DIFFICULTY	LUCK
ABILITY	Group 16 N = 72 N = 11 N = 4	Group 12 N = 37 N = 13 N = 7	Group 8 N = 16 N = 9 N = 6	Group 4 N = 50 N = 10 N = 9
EFFORT	Group 15 N = 197 N = 176 N = 135	Group 11 N = 985 N = 1216 N = 778	Group 7 N = 78 N = 145 N = 115	Group 3 N = 64 N = 104 N = 83
TASK DIFFICULTY	Group 14 N = 104 N = 56 N = 30	Group 10 N = 222 N = 122 N = 89	Group 6 N = 121 N = 62 N = 47	Group 2 N = 59 N = 31 N = 17
LUCK	Goup 13 N = 11 N = 17 N = 3	Group 9 N = 23 N = 11 N = 7	Group 5 N = 21 N = 10 N = 3	Group 1 N = 45 N = 15 N = 7

Table 3
DISCRIMINANT ANALYSIS SUMMARY
ON 16 ATTRIBUTIONAL GROUPS

Grade Four

HIGHEST $\bar{X}$ MATH: Groups 15, 11
LOWEST $\bar{X}$ MATH: Group 8
HIGHEST $\bar{X}$ READING: Groups 15, 11
LOWEST $\bar{X}$ READING: Group 5
HIGHEST ANXIETY: Group 1
LOWEST ANXIETY: Groups 9, 13, 10

GRADE EIGHT

HIGHEST $\bar{X}$ MATH: Groups 12, 16
LOWEST $\bar{X}$ MATH: Group 4
HIGHEST $\bar{X}$ READING: Groups 12, 16
LOWEST $\bar{X}$ READING: Group 4
HIGHEST $\bar{X}$ ANXIETY: Group 4
LOWEST $\bar{X}$ ANXIETY: Groups 12, 16
HIGHEST Conintuing Motivation: Groups 13, 16
LOWEST Continuing Motivation: Groups 1, 8

GRADE ELEVEN

HIGHEST $\bar{X}$ MATH: Groups 13, 14
LOWEST $\bar{X}$ MATH: Group 2
HIGHEST $\bar{X}$ READING: Groups 15, 14, 13
LOWEST $\bar{X}$ READING: Group 4
HIGHEST $\bar{X}$ ANXIETY Group 2
LOWEST $\bar{X}$ ANXIETY: Groups 13, 15, 14
HIGHEST Continuing Motivation: Groups 13, 15
LOWEST Continuing Motivation: Group 6

References

Dweck, C.S. The Role of Expectation and Attribution in the Alleviation of Learned Helplessness. Journal of Personality and Social Psychology, 1974, 31, 674-685.

Dweck, C.S. and Goetz, T.E. Attributions and Learned Helplessness. In J. H. Harvey, W. Ickes, and R.F. Kidd (Eds) New Directions in Attribution Research (Vol. 2) Hillsdale, New Jersey: Earlbaum, 1978.

Farmer, H.S. and Fyans, L.J., Jr. Womens Achievement and Carrer Motivation Their Risk Taking Patterns, Home Careers Conflict, Sex Role Orientation, Fear of Success, and Self-Concept. Psychology of Women Quarterly, 1979.

Fyans, L.J., Jr, The Relation Between Attributions and Task Selections. Masters Thesis (1975) University of Illinois, Urbana-Champaign. Now published as Fyans, L.J., Jr. and Maehr, M.L. Attributional Style, Task Seclection and Achievement. Journal of Educational Psychology, 1979, 71, 499-507.

Fyans, L.J., Jr., Kremer, B., Salili, F., and Maehr, M.L. The Effects of Evaluation Conditions on Continuing Motivation: A Study of Cultural, Personological and Situational Antecedents of a Motivational Pattern. Manuscript Submitted for Publication. Journal of Education Psychology, 1979.

Joreskog, K.G. Analysing Psychological Data by Structural Analysis of Covariance Matrices in D. Krantz, R.D. Luce, R. C. Atkinson, P. Suppes. Measurement, Psychological, and Neural Information Processing. Contemporary Developments in Mathematical Psychology. Vol. II. San Francisco: W.H. Freeman and Company, 1978.

Maehr, M.L. Description and Theoritical Overview of the I.O.E./U.I.U.C. Project on Motivation and Achievement. Presentation at Symposium on Socio-Cultural and Motivational Problems and Opportunities in the Measurement and Assessment of Achievement, Thomas Kerins (chairperson), American Educational Research Association, April, 1979, San Francisco, California.

Nicholls, J.G. The development of the concepts of effort and ability, perception of own attainment, and the understanding that difficult tasks require more ability. Child Development, 1978, 49, 431-455.

Nicholls, J.G. Effort is virtuous, but is better to have ability: Evaluative Responses of Efforts and Ability. Journal of Research in Personality, 1977, 10, 306-315.

Weiner, B. An Attributional Approach In Educational Psychology. In L.S. Shulman (Ed.), Review of Research in Education (Vol. 4). Itasca, Ill.: F.E. Peacock, 1977.

Weiner, B. Theories of Motivation Chicago: Rand McNalley, 1972.

Weiner, B. A theory of motivation for some classroom experiences. Journal of Educational Psychology, 1978, 71, 3-25.

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